**ABSTRACT**

**Purpose:** An increasing demand for esthetic restorations has resulted in the development of new ceramic systems, but fracture of veneering ceramics still remains the primary cause of failure. Porcelain repair frequently involves replacement with composite resin, but the bond strength between composite resin and all-ceramic coping materials has not been studied extensively. The purpose of this study was to evaluate the influence of different ceramic surface treatments with different particle sizes on the micro-shear bond strength of composite resin to lithium disilicates.

**Materials and Methods;** Total of 90 readily available lithium disilicate cylindrical ingots of dimension 10x10x10$mm^3$ were used . Samples were divided into three groups , and three sizes of aluminium oxide particles were used Group-A 50µM, Group-B 110µm, Group-C 250µm. The samples are then etched with HYDROFLUORIC ACID 9.6% for 30 seconds. The ceramic ingots were coated with Monobond-N and followed by Heliobond application which is then light polymerised along with plastic scaffold stabilisation . Composite resin is then loaded into scaffold and polymerised . To ensure that no flash of resin composite extends on to the ceramic ingot samples are checked under optical microscope to examine the interfacial defects . Each specimen were subjected to shear load at a cross head speed of 0.5 mm/min until fracture occurred. The fracture sites were examined under scanning electron microscope to determine the location of failure during debonding and to examine the surface treatment effects . One-way analysis of variance (ANOVA) and multiple comparison Dunnett t3 tests were used for statistical analysis of data .

**Results:** The mean micro-shear bond strength values (SD) in MPa were Group-A 4.64(2.32), B-6.65(1.98), C- 4.81(2.41). ANOVA indicated the influence of surface treatment was

significant ($p < 0.0001$). SEM analysis did not reveal entirely cohesive failure in any composite or ceramic.

**Conclusion:** The micro-shear bond strength of a composite resin to lithium disilicates was significantly different depending on the surface treatment method. Among the investigated methods, airborne-particle abrasion with 110µm and was the most effective surface treatment in terms of bond strength increase.

**Key Words:** Lithium disilicate ingots (Bio Comp) , IPS empress direct –Ivoclar , Micro Shearbond strength, Universal testing machine.